



Armed Forces College of Medicine AFCM



Heart

INTENDED LEARNING OBJECTIVES (ILO)



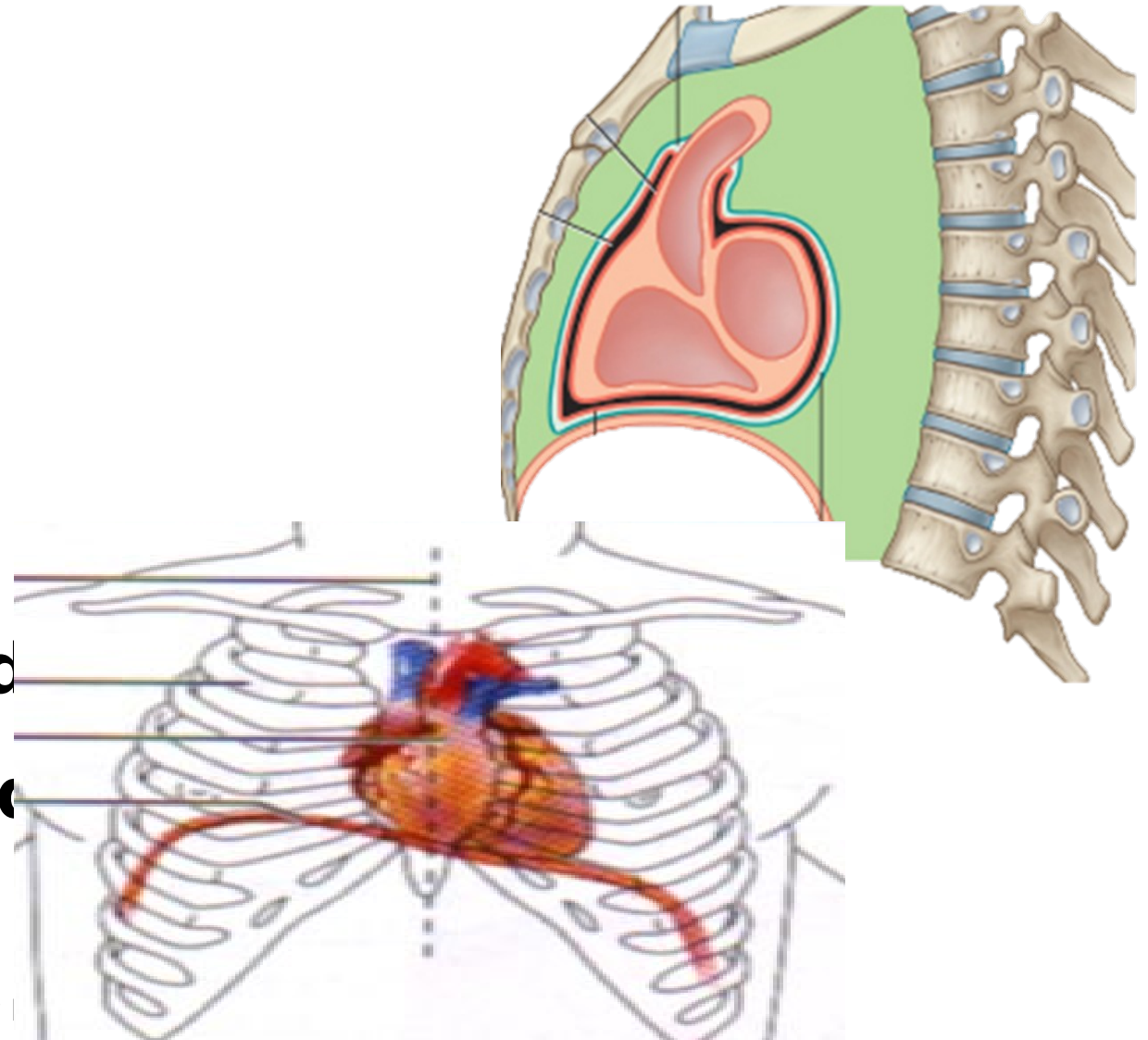
By the end of this section each of the student should be able to:

1. Identify the position of the heart.
2. Identify the external features of the heart (borders, apex, base, chambers, surfaces and grooves).
3. Identify the internal features of the chambers of the heart.
4. Correlate between the external features of the heart and their radiological appearance on x-ray films.

Position of the heart



- It lies in the middle mediastinum.
- Its long axis is directed **downwards, forwards & to the left.**
- It is placed **obliquely** behind the body of the sternum and adjoining costal cartilages and ribs and rests on the

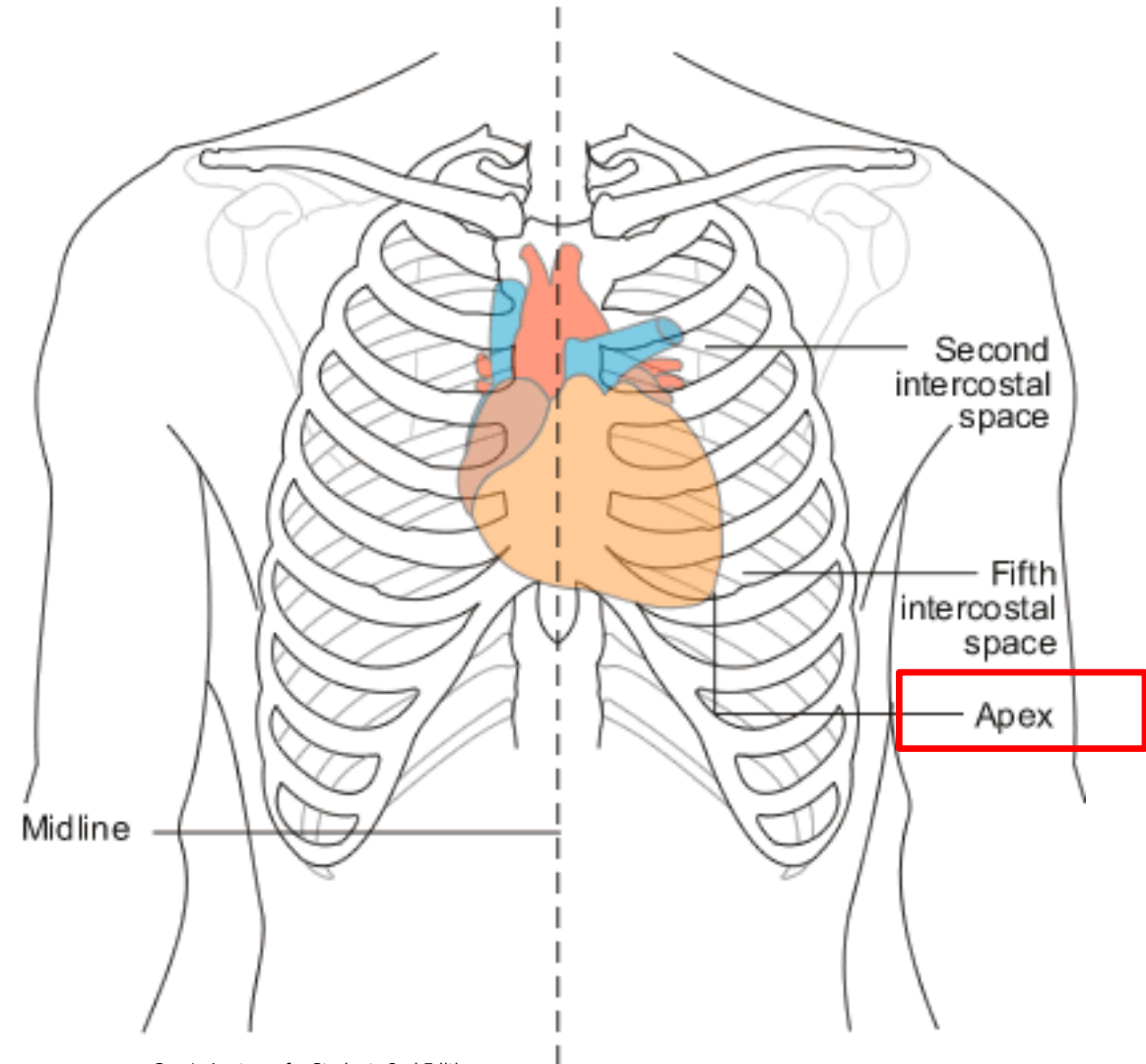


External feature of the heart



The heart has

- **Apex and base**
- **4 chambers**
- **4 borders (superior, inferior, right and left)**
- **2 surfaces (sternocostal and**



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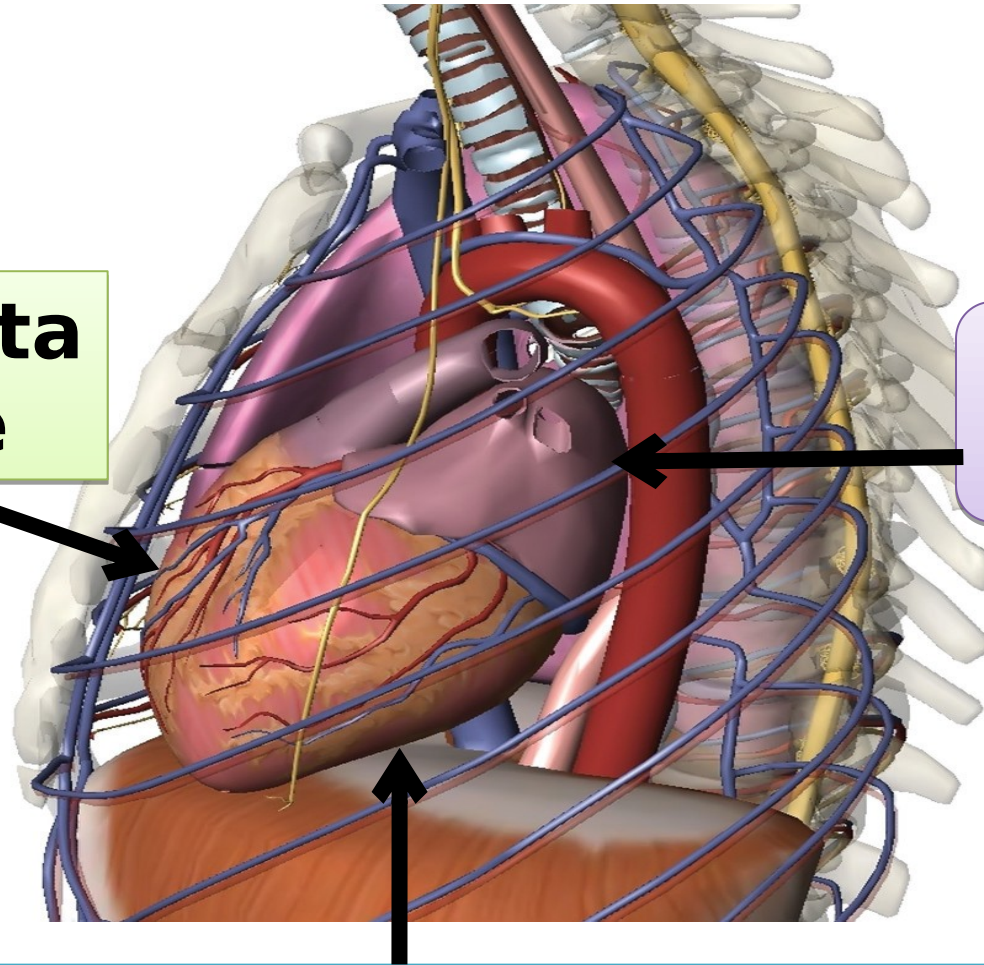
External features of the heart



Sternocostal surface

Base of the heart

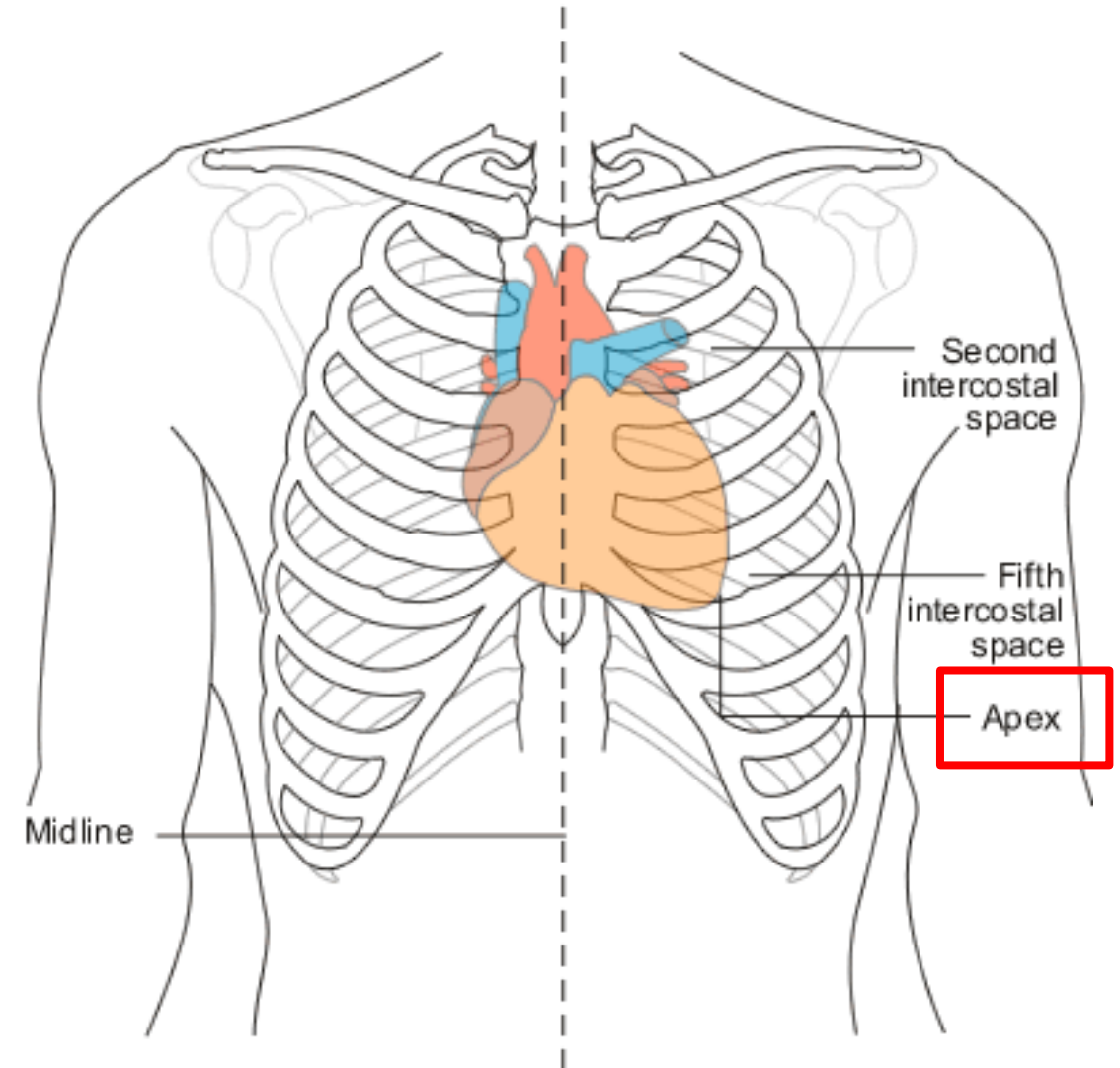
Diaphragmatic Surface



Apex of the heart



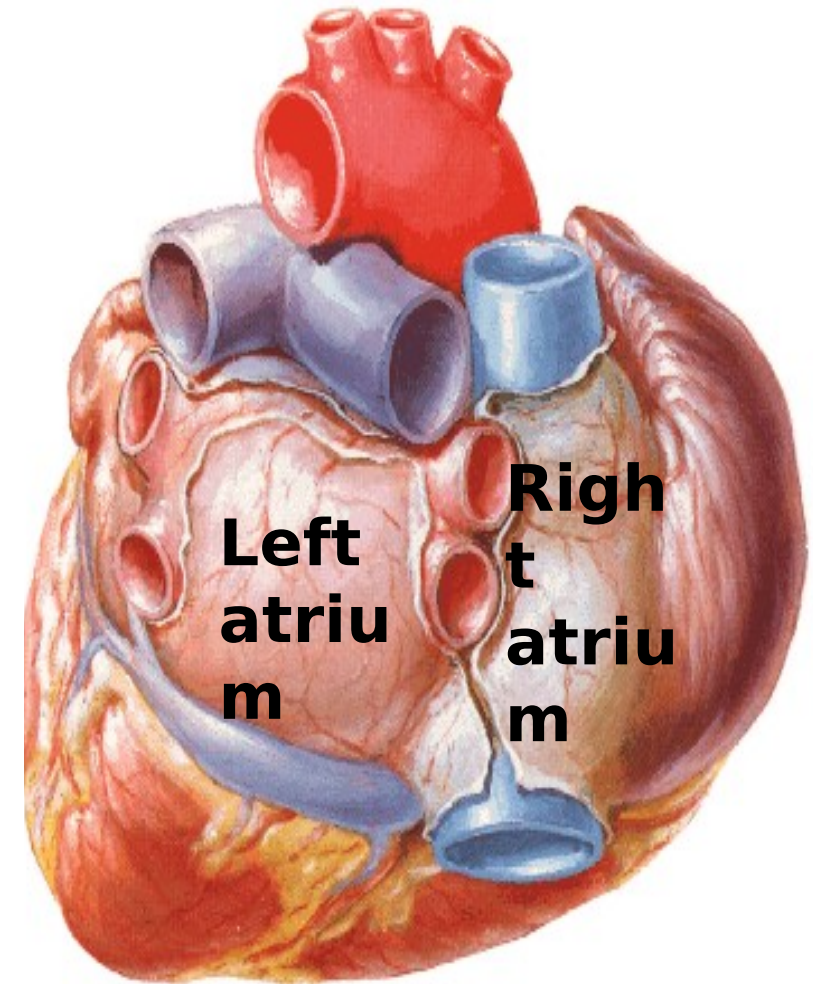
- Is directed **downwards, forwards and to the left.**
- Is formed by the **left ventricle.**
- Lies in the **left 5th intercostal space, approximately 9 cm**



Base of the heart



- Directed **posteriorly**.
- It is formed by **left atrium mainly** + **right atrium**.

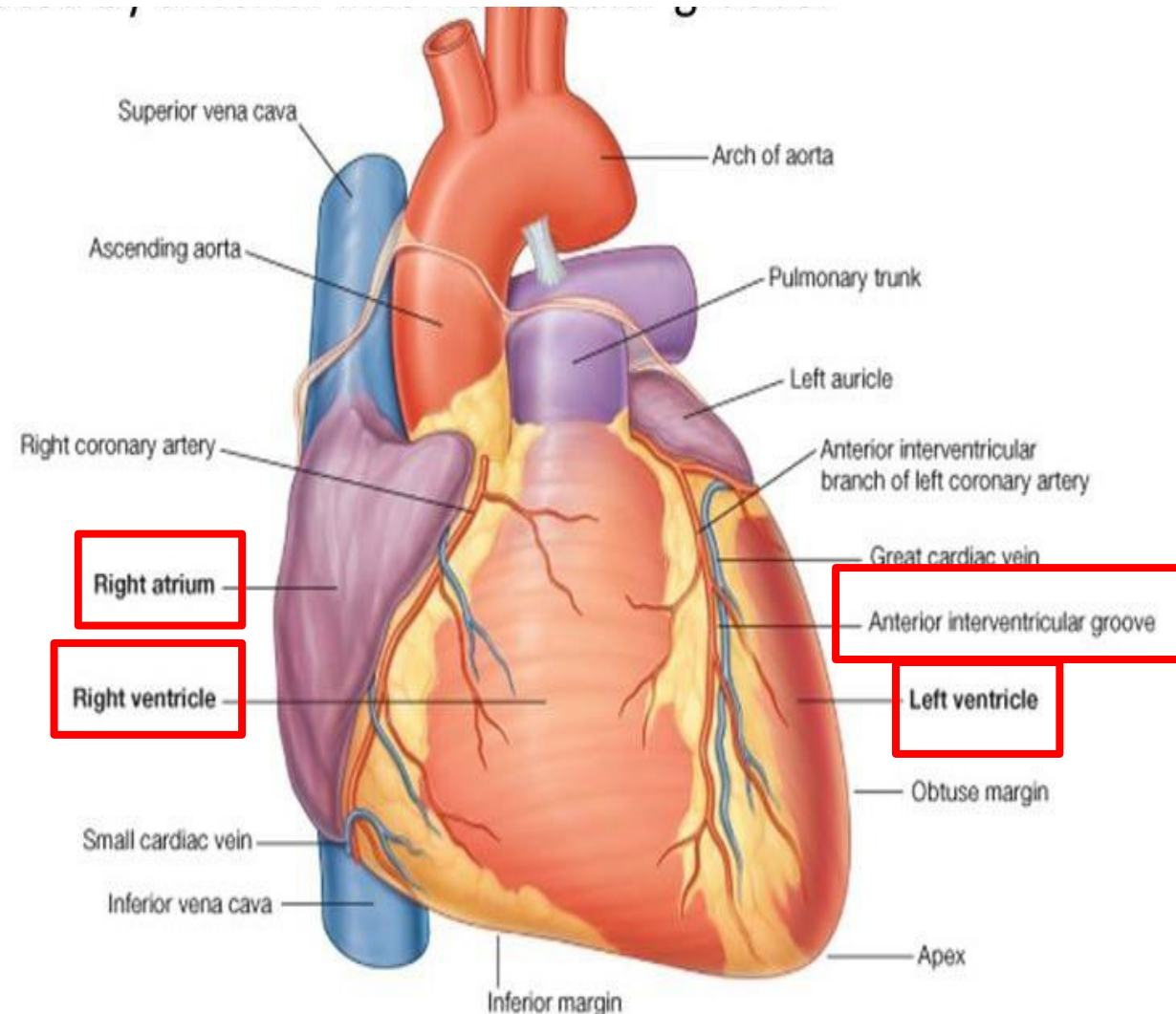




Surfaces of the heart

Anterior (sterno-costal) surface that is divided by the coronary groove into:

- Atrial part formed by the **right atrium**.
- Ventricular part formed by **right ventricle (2/3) & left ventricle (1/3)** that are separated by the **anterior**



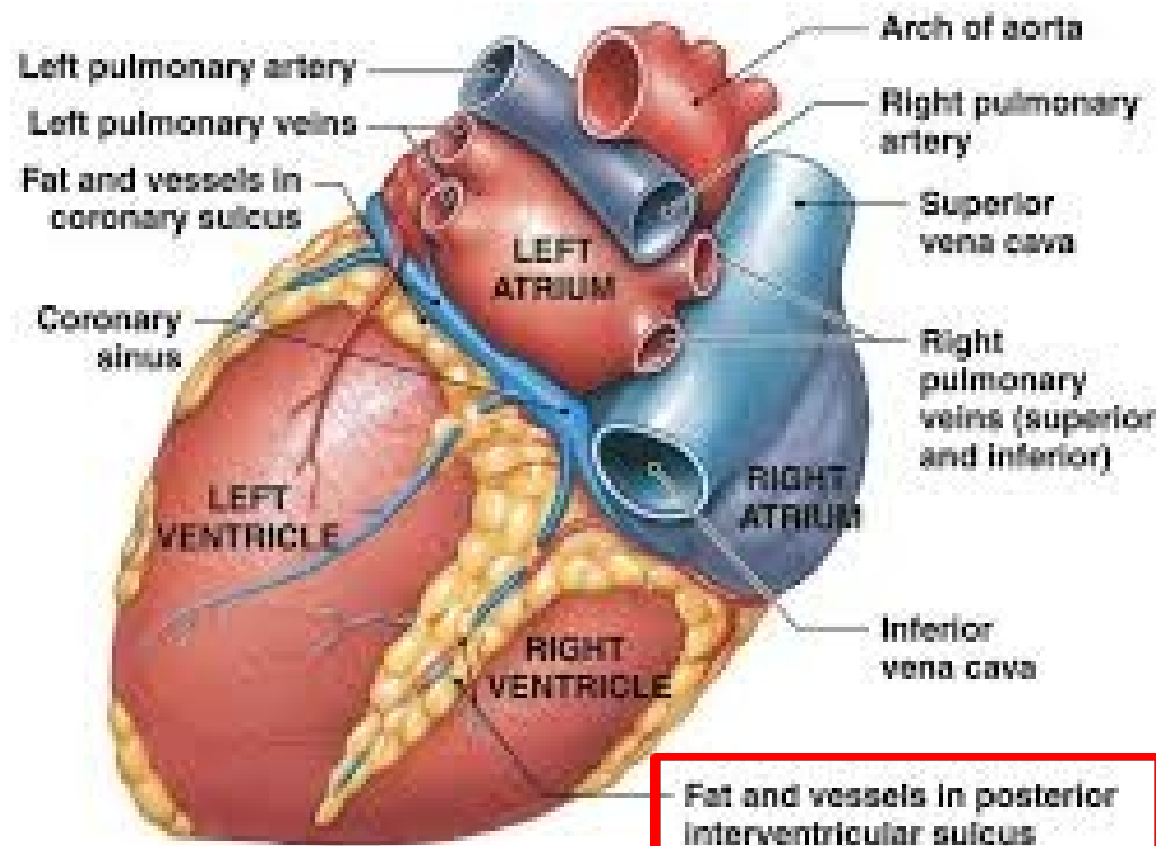


Surfaces of the heart

Diaphragmatic surface formed by both ventricles.

- Left 2/3 by **left ventricle**
- Right 1/3 by **right ventricle**

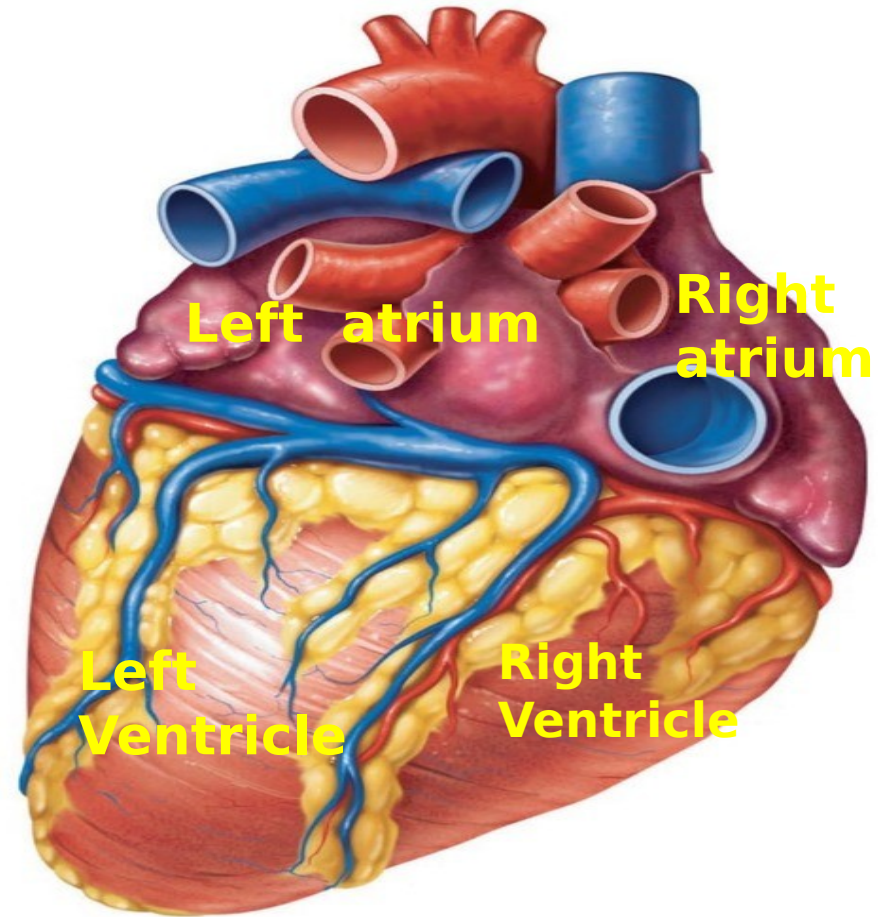
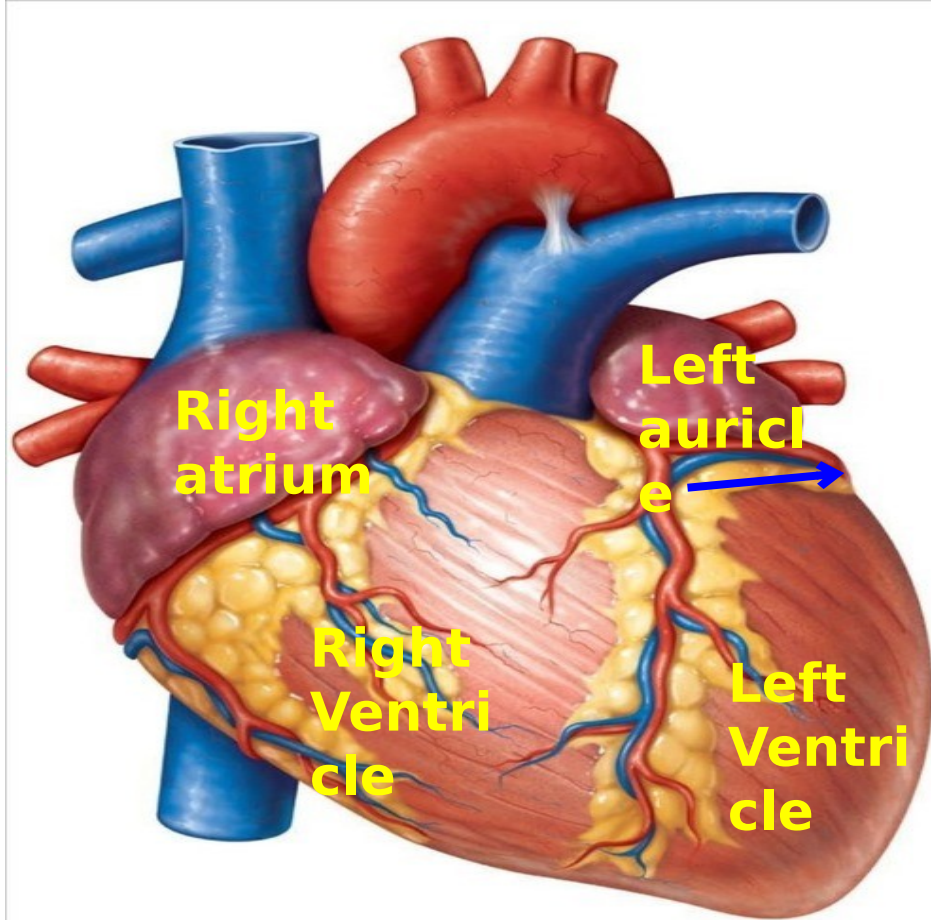
Both parts are separated



(b) Posterior (diaphragmatic) surface

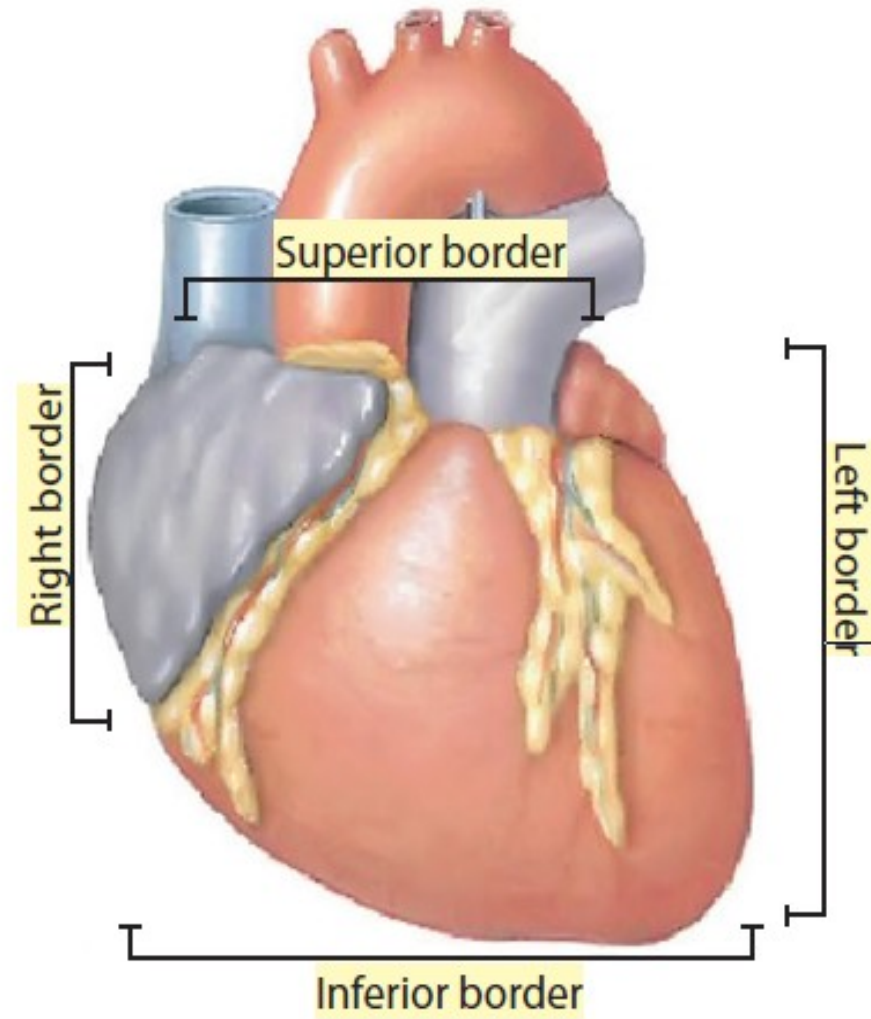


Chambers of the heart



Borders of the heart

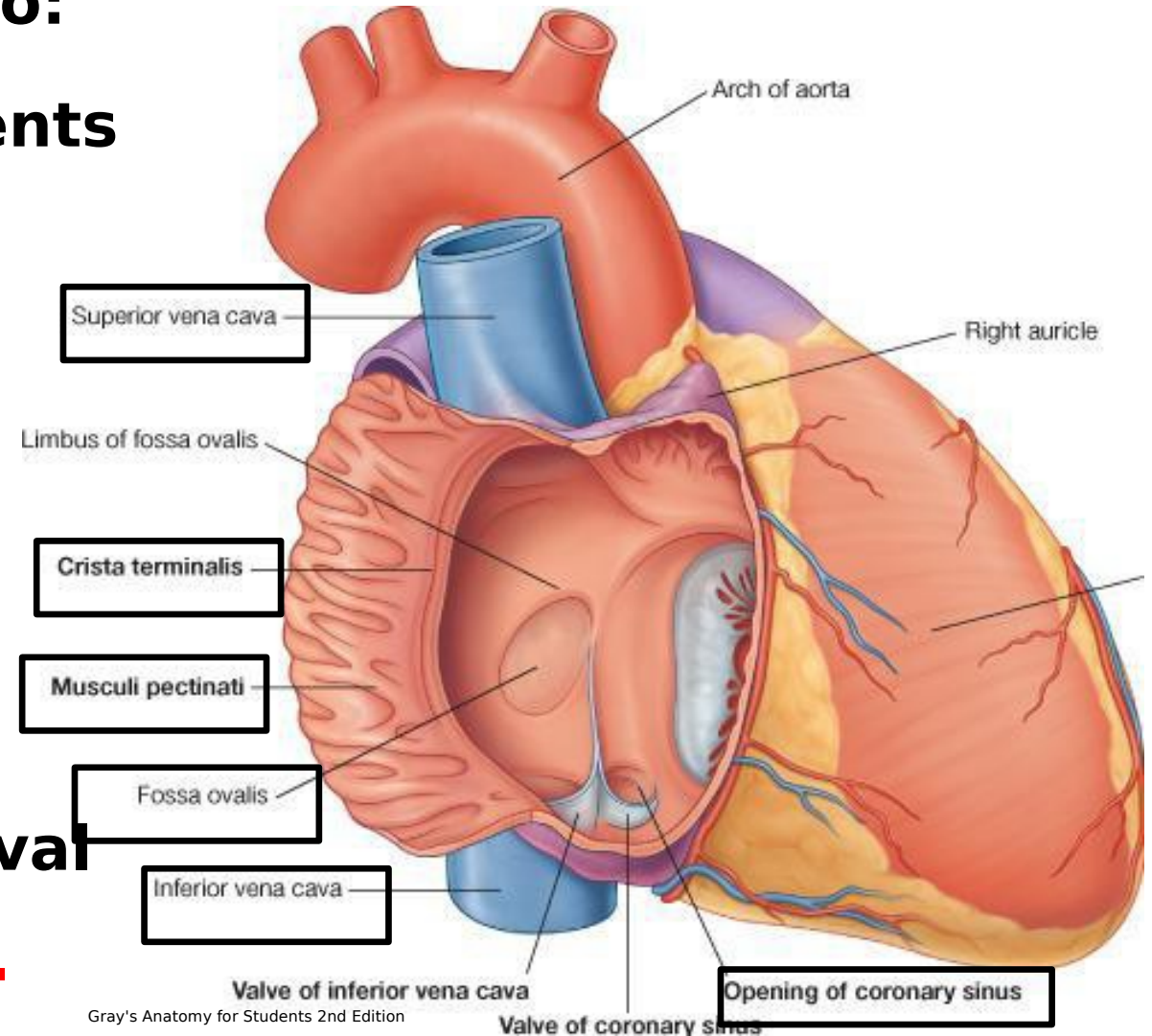
1. Upper border formed by **both atria.**
2. Right border formed by **right atrium.**
3. Lower border formed by **right ventricle + apex (Lt ventricle).**



Internal feature of the heart (Rt Atrium)



- ❑ Divided by **crista terminalis** into:
 1. Anterior rough part that presents **musculae pectinatae**.
 2. Posterior smooth part that receives the opening of:
 - **Superior vena cava**
 - **Inferior vena cava**
 - **Coronary sinus**
- ❑ Interatrial septum shows an oval depression called **fossa ovalis**.



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Internal feature of the heart (Rt ventricle)

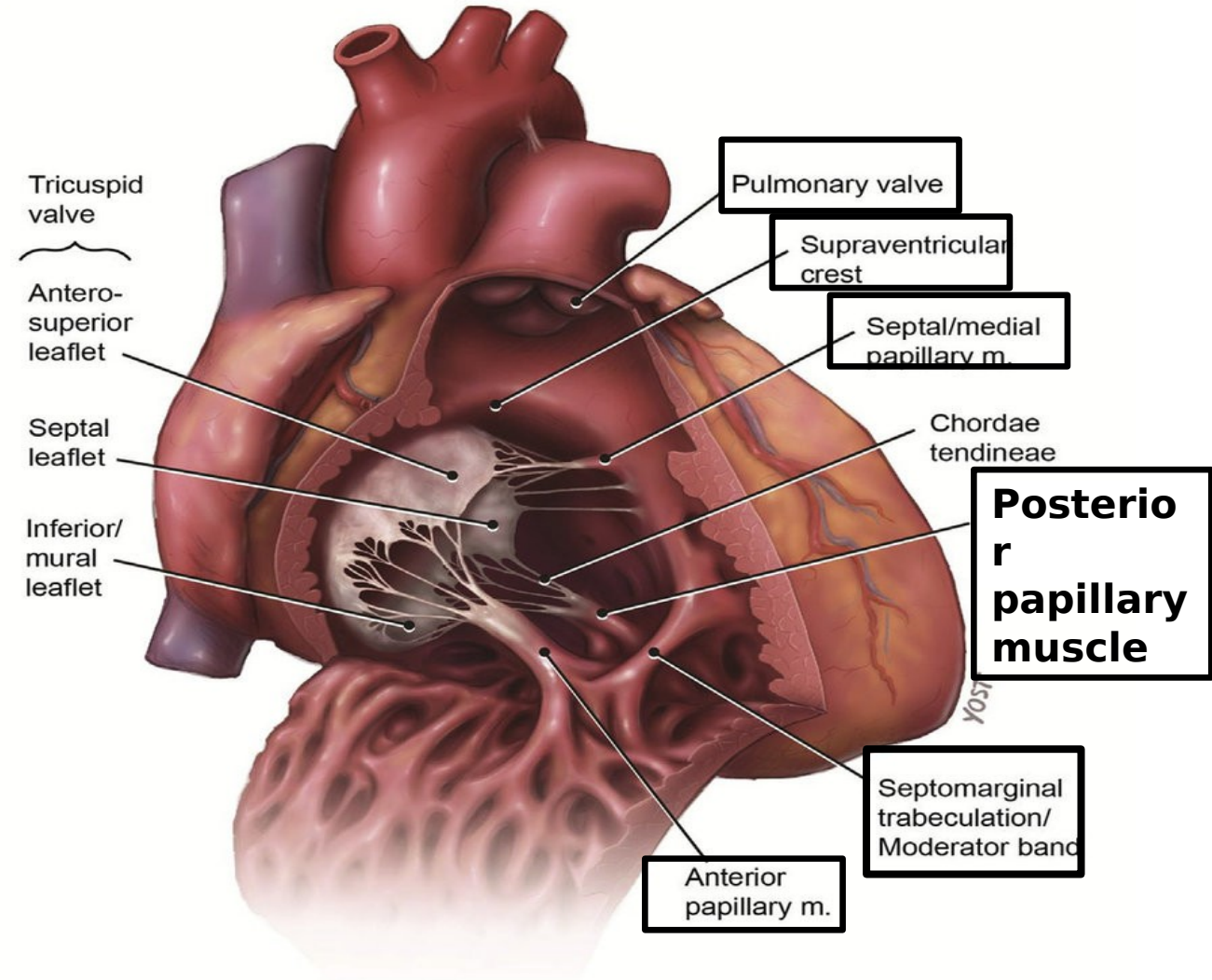


Divided by **supraventricular crest** into:

1. Inflowing rough part that presents:

- Trabeculae carni
- Moderator band
- (3) papillary muscles (anterior, posterior and septal)

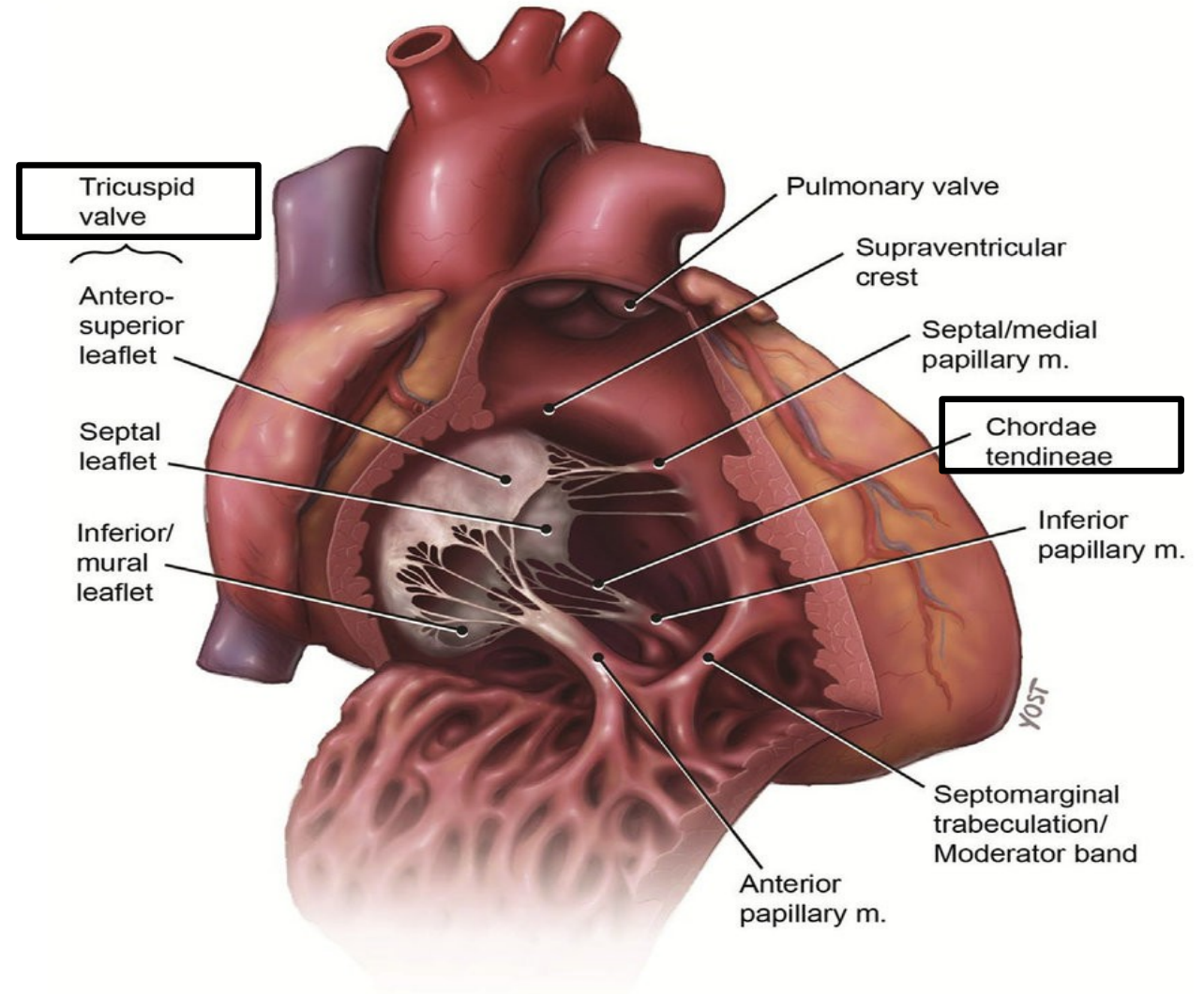
2. Outflowing smooth part



Right atrioventricular orifice



- It is guarded by the tricuspid valve that has **3 cusps** (anterior, posterior & septal).
- Each cusp is attached to a papillary muscle by **chordae tendinae**.



Internal feature of the heart (Lt ventricle)

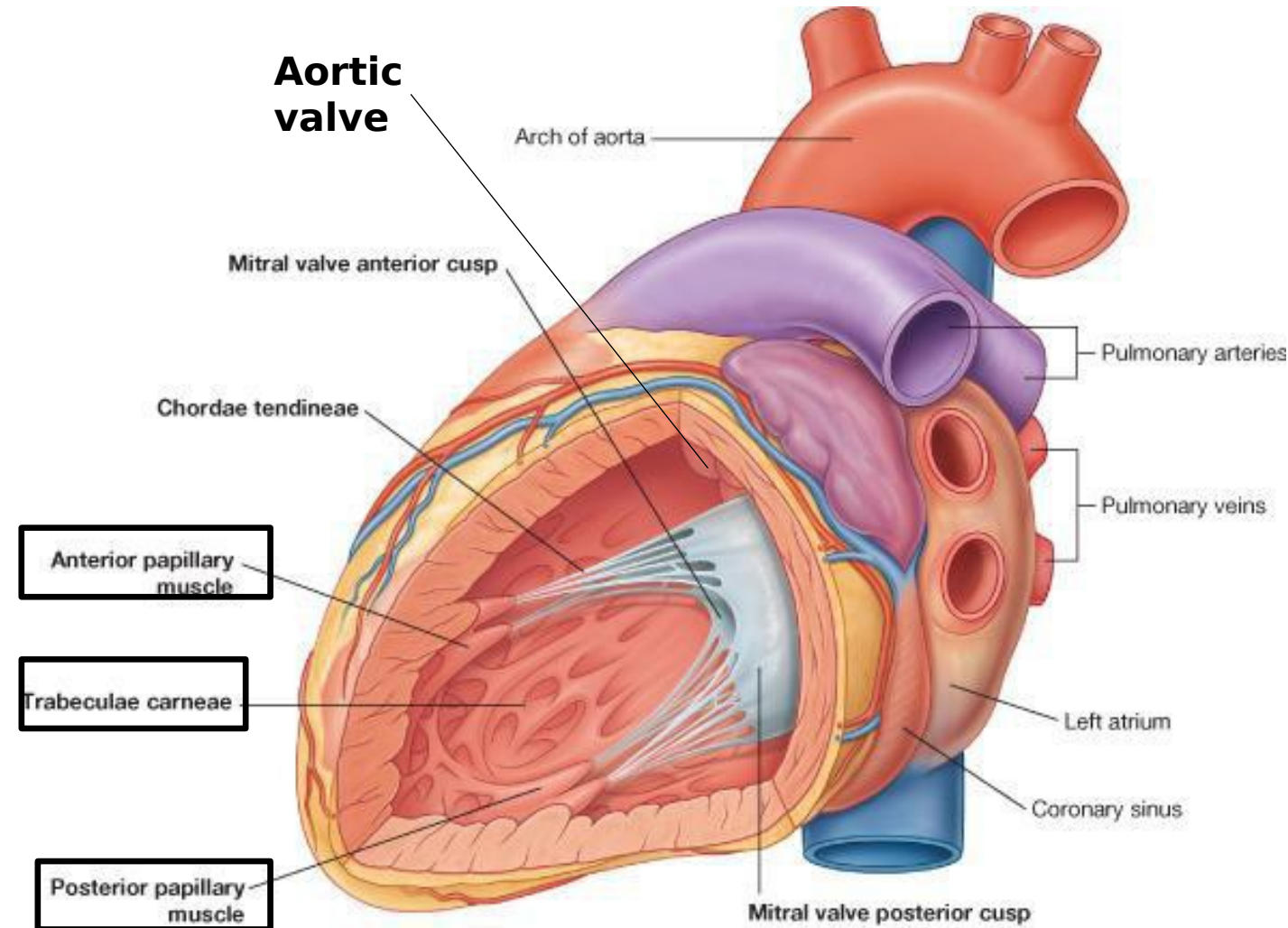


It is divided into:

1- Rough inflowing part that presents:

- Trabeculae carni
- (2) papillary muscle(anterior & posterior)

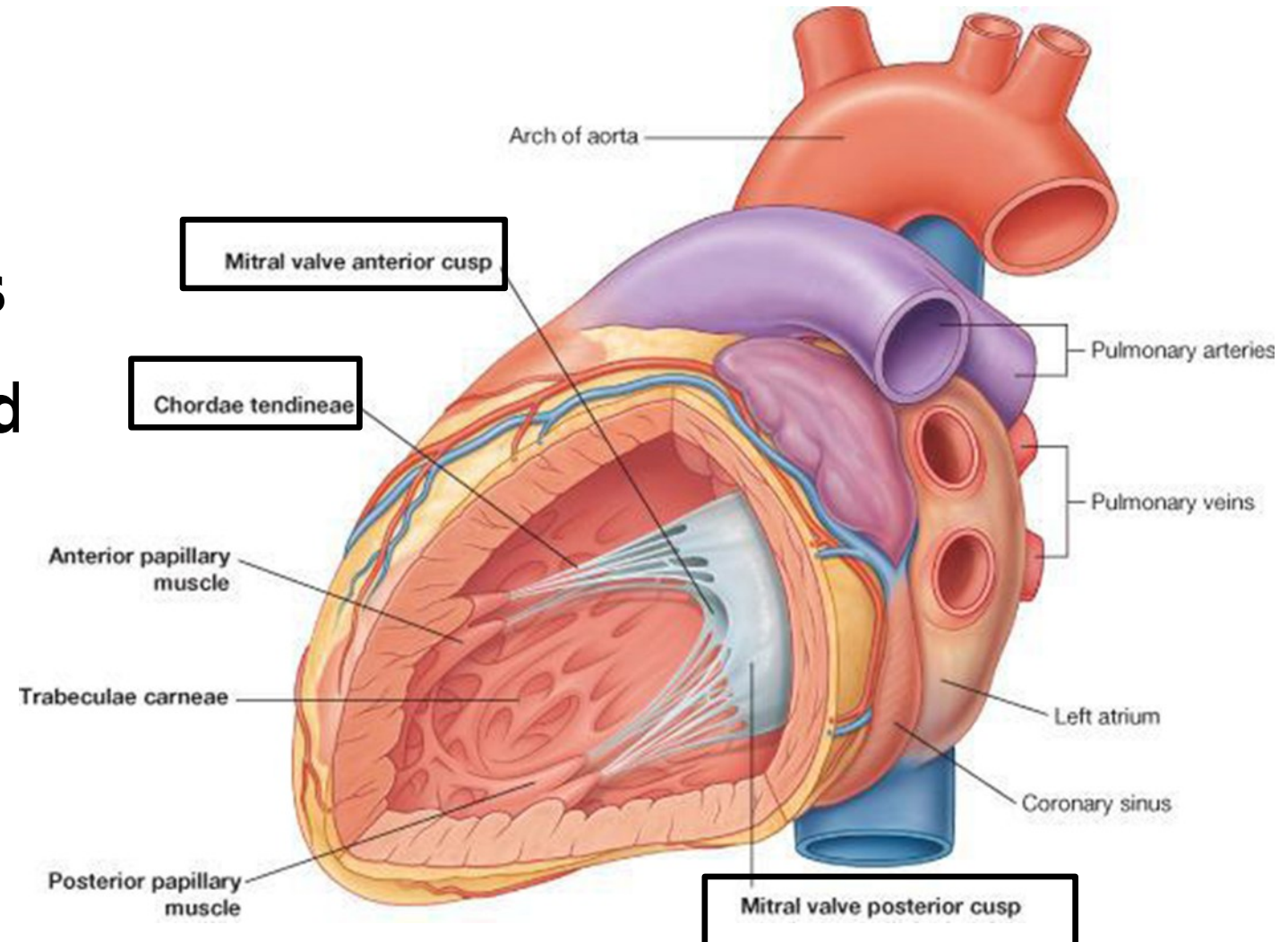
2- Smooth outflowing part
(**aortic vestibule**) that



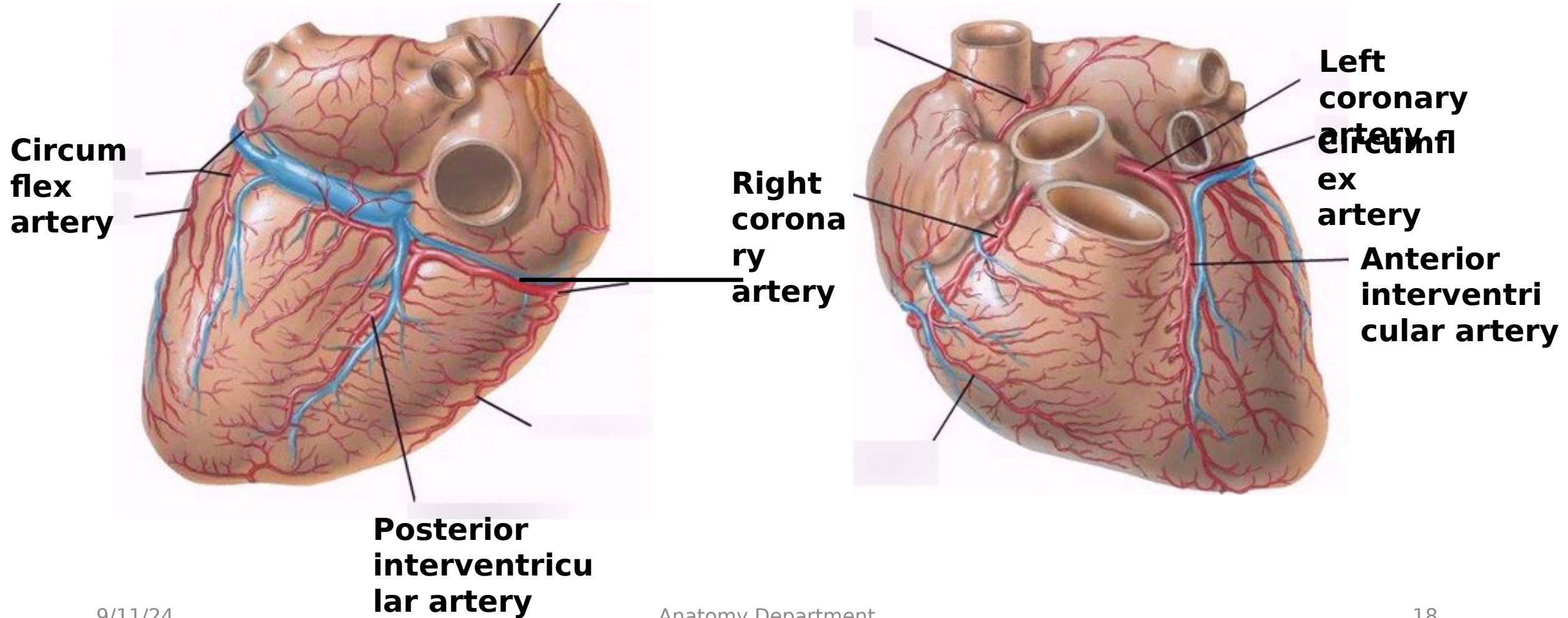
Left atrioventricular orifice



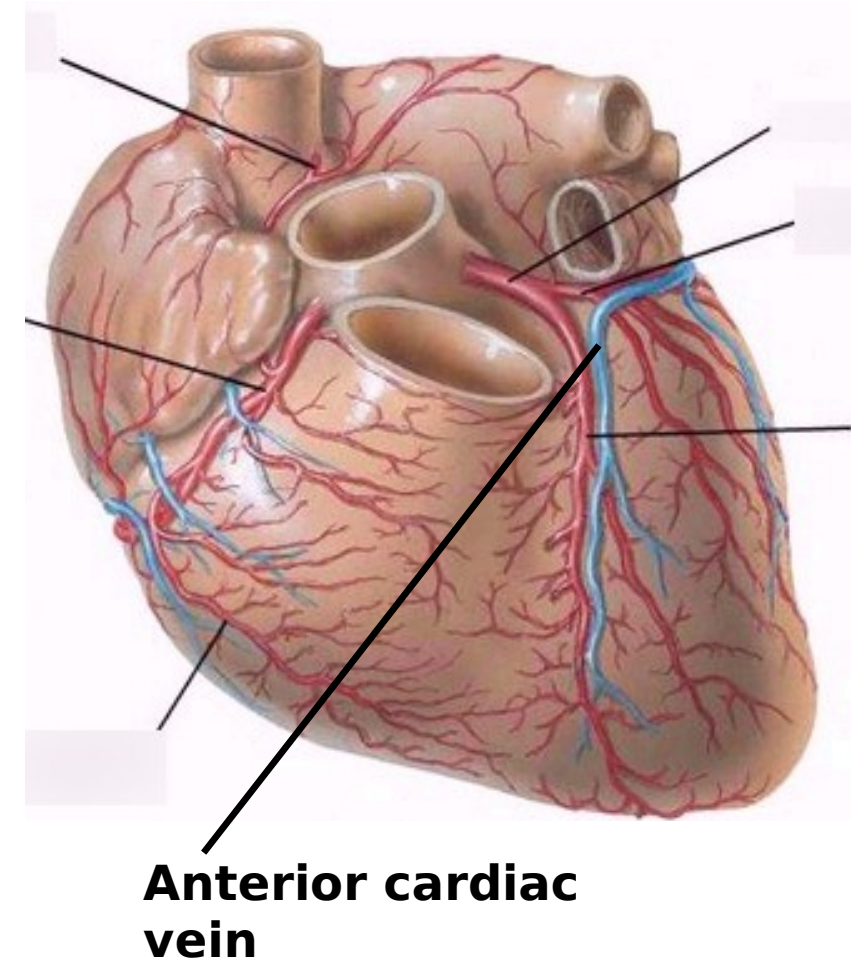
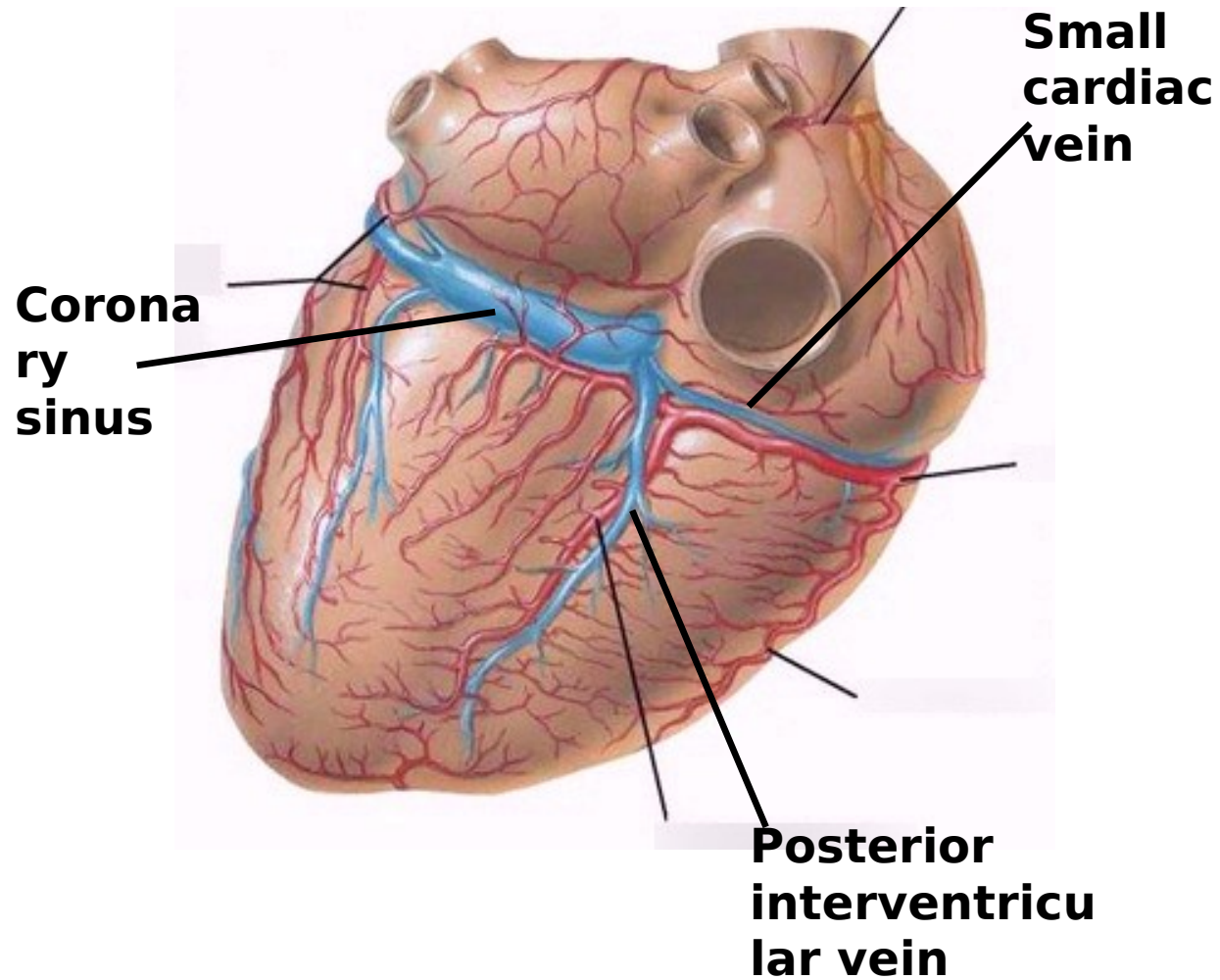
- It is guarded by the mitral valve that has **2 cusps** (anterior and posterior).
- Each cusp is attached to a papillary muscle by **chordae tendinae**.



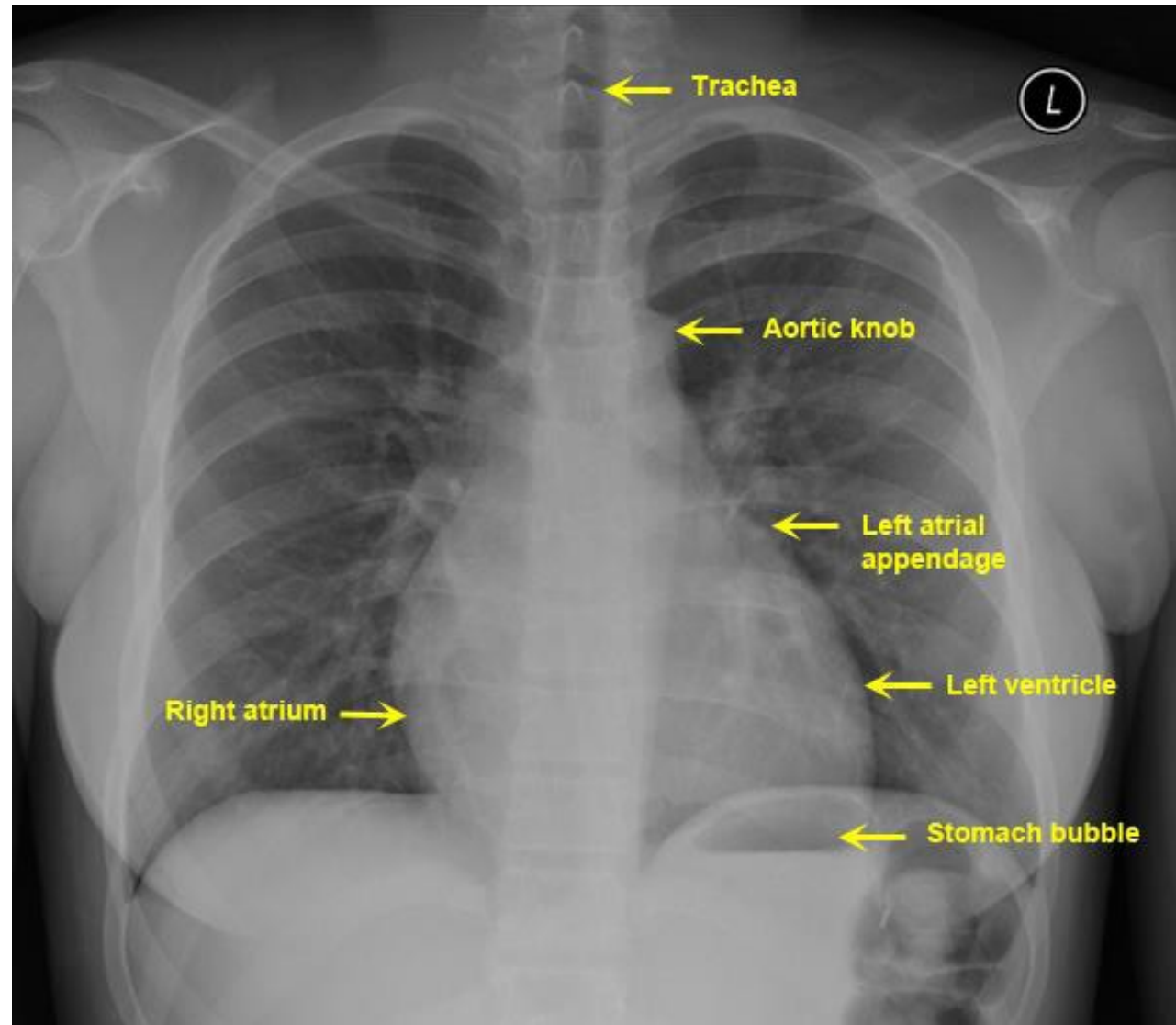
Arterial blood supply of the heart



Venous drainage of the heart



Cardiac Imaging



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